620-371 Linear Models

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 1, - Taught on campus. Lectures and practice classes.
Time Commitment:	Contact Hours: 36 one-hour lectures (three per week) and up to 12 one-hour practice classes (one per week) Total Time Commitment: 120 hours total time commitment.
Prerequisites:	One of *Statistics*, 620-270 (prior to 2009) or *Applied Statistics for Optometrists*.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.
Coordinator:	Dr Andrew Peter Robinson
Subject Overview:	This subject develops problem-solving skills and sharpens analytical skills. Students will work in groups, tackling unfamiliar problems. Each team will plan their project work and deliver oral and written presentations. This subject introduces the basic theory of the general linear model and explains how linear models are used to analyse data. Students should develop the ability to examine data for common structures and patterns and to formulate linear models in specific practical situations, including univariate normal responses with a combination of explanatory factors. They learn to carry out the necessary computations on the computer, check the assumptions of the model in specific situations, and express the results of modelling in scientifically useful terms. This subject demonstrates the importance of the general linear model in analysing a variety of data and giving useful information about scientific subject matter. Topics covered include general least squares theory of estimation and hypothesis testing; application to one and two-way classifications; factorial experiments; analysis of covariance; multiple regression; polynomial regression; use of statistical computer packages; nested and crossed factors; fixed and random effects; and multiple and orthogonal contrasts.
Objectives:	.
Assessment:	Up to 40 pages of written assignments due during the semester (15%); a group project during semester with a 30-minute oral presentation and a written report of up to 25 pages (10%); a 3-hour written examination in the examination period (75%).
Prescribed Texts:	None
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2009/D09)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2009/F04)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2009/A04)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2009/M05)**

	You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Notes:	This subject is available for science credit to students enrolled in the BSc (pre-2008 degree only), BASc or a combined BSc course. Passing *Linear Models* precludes subsequent credit for *Data Analysis 2*, 620-270 (prior to 2009) or *Applied Statistics for Optometrists*.
Related Majors/Minors/ Specialisations:	Environmental Science Environmental Science Mathematics & Statistics Major Mathematics and Statistics (Financial Mathematics specialisation) Mathematics and Statistics (Statistics specialisation)